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ABSTRACT

The Nominal Group Technique (NGT) is one of several structured, small group approaches that can be used in the evaluation process. It has most often been used in needs assessment, to generate categories of potential need and/or alternative solutions to perceived specific problems. The process is based on a set of rules and uses silent idea generation, structured reporting of ideas within the group, discussion to clarify reported ideas, and prioritizing ideas to develop a product in a short period of time. The product of the process is a rank order listing of ideas produced in the group. Six steps in the approach are summarized, along with a discussion of the types of problems amenable to the use of the NGT and alternatives for analyzing NGT results. (Author/SLD)

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A QUICK LOOK AT THE NOMINAL GROUP TECHNIQUE

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ABSTRACT

The Nominal Group Technique (NGT) is one of several structured, small group approaches that can be used in the evaluation process. It has most often been used in needs assessment, to generate categories of potential need and/or alternative solutions to perceived specific problems. The process is based on a set of rules and uses silent idea generation, structured reporting of ideas within the group, discussion to clarify reported ideas and prioritizing ideas to develop a product in a short period of time. The product of the process is a rank ordered listing of ideas produced in the group.

Participants in this activity will:

- Learn the six steps in the NGT approach;
- Identify classes of problems that are amendable to use of NGT; and
- Review alternatives for analyzing and reporting NGT results.

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In a survey of trainers selected from the midwest chapter of the American Society for Training and Development, Beaudin and Dowling (1985) reported that about 30 percent of trainers conducting studies of organizational or individual training needs used group discussion as a data collection technique. Further, group discussion frequently is offered as a key needs assessment method (e.g., Cummings, 1984; Cummings and Bramlett, 1984; Cureton, Newton and Tesolowski, 1986; Newton and Lilyquist, 1979; Steadham, 1980). The group processes that might be used include brainstorming, focus groups, consensus groups, force-field analysis, Nominal Group Technique (NGT) or other currently popular group facilitation approaches.

One of the most popular group approaches is the Nominal Group Technique. Introduced by Delbecq, Van de Ven and Gustafson (1975), and more recently described by Moore (1987), the NGT has been touted as an approach for idea building in needs assessment (e.g., Harrison, Pietri and Moore, 1983; Scott and Deadrick, 1982).

We have used the technique effectively in a variety of projects at Arthur Andersen & Co.'s Center for Professional Education. Early in their career, the evaluation staff persons at the Center are trained in the use of the NGT, and many of the instructional designers are trained, as well. This paper describes the Nominal Group Technique, and presents information about how and when to use the approach.

WHEN TO USE NGT

Like any technique, NGT is useful in some circumstances and not in others. It is important, therefore, to match the technique to the problem with which the researcher/evaluator is faced. Use the Nominal Group Technique when:

- o You need to generate many ideas about one question (issue, problem, etc.) in a short period of time;
- o You need pooled intelligence to generate ideas related to an ill-defined problem (that is to capitalize on the premise that some problems can't be solved by an expert because the expert can't know enough, and that a group, multi-perspective results in better decision-making than individuals acting alone);
- o You want to assure equal opportunity for individual input to the group product and to override barriers of status and/or verbal aggressiveness of group members
- o You are NOT interested in team building within the group.

The NGT has several advantages, many of which are reflected in the use guidelines above. The key advantages of the technique are:

1. It can be used with groups of varying backgrounds, cultures, education, or work roles who share a common goal.
2. It is good for use in groups where members are "strangers" but have differing status.
3. It can be used in groups where participants do not have previous knowledge of group process skills.
4. It will guide the group to generate many ideas in a short amount of time.
5. It enhances maximum and equal participation of each person.
6. It focuses the group's concentration on a specific question.

7. It produces a ranking of the relative importance of ideas that are generated.

8. The structure of NGT makes it relatively easy to run.

There are also limitations to the NGT process. Key considerations are:

1. NGT is used to generate ideas rather than to develop or design alternatives or to actively contrast and select "most appropriate" ideas;
2. Part of the success of the process is its novelty; it can be overused;
3. The technique calls for a trained group facilitator;
4. It is appropriate for dealing with only one question at a time.

PREPARING FOR THE NGT PROCESS

The NGT depends for its success on three essential elements:

- o Selection of the right participants;
- o Developing a precise, appropriate stimulus question;
- o Setting up and then following the structure of the process within the group.

Selecting NGT Participants

The participants for an NGT should be selected with he same care that would be taken in selecting interviewees for a study. They should be knowledgeable about and have the broad range of perspectives on the problem or issue under consideration. If there are political points of view to be considered, representatives of those points of view should be included. One of the strengths of the NGT is that it reduces the strength of positional or titular status. Therefore, various ranks or classes of people can be selected. The nature and scope of the question should dictate how homogeneous the participant group should be.

The size of the group should be from 5 to 12 participants. With fewer than five participants, the structure of the group is artificial and alternative approaches should be used. With more than 12 group members, the conduct

becomes difficult and too slow from the individual group member's perspective. That is, members are locked out of interacting for too long between contributions. With larger groups, the group should be split and two sessions run. If there is only one facilitator and one time slot in which to gather the data, then an approach like Phillips' 66 group or consensus group debriefing should be considered.

Developing the NGT Question

The stimulus question will determine the character of the responses obtained from the process. The question should be clearly and simply stated, but it should be precise enough to elicit ideas at the appropriate level of detail. The question must be unidimensional; otherwise responses will be ambiguous and may even be uninterpretable. The question writer should anticipate the characteristics of the desired responses then try out the proposed question to see if responses obtained fit the expected response profile.

Materials and Logistical Needs

The process involves capturing and posting ideas for consideration. The materials needed and some logistics to help the process work smoothly are provided below.

Materials checklist. Make sure all needed materials are in the room.

- 2 flipcharts on easels
- 2 black markers
- 2 red markers
- 1 green marker
- 1 roll of masking tape or push pins (to mount flipchart sheets on wall)
- 200 3X5 index cards
- problem statement worksheets (enough for one per group member)
- pencils and notetaking paper (for participants)
- name tents or tags

Logistics. Important logistics of which to be aware:

- Consider texture of walls - tacks or tape?
- Seating - participants should be close to facilitator and facing each other (see Attachment 1).
- Provide water within the room to keep participants nearby throughout the session.
- remove telephones from room to prevent interruptions.

With the right participants, a good question and a well equipped room, the structure of the process for conducting NGT is the final ingredient for a successful study.

THE NGT PROCESS

Opening Statement

The opening statement is used to set the tone for the meeting and is an important element in establishing the structure on which the success of the NGT depends. The statement should:

1. Establish the facilitator's role as the person responsible for keeping the meeting moving toward its goal. The role includes: timekeeping, process management, and maintaining discipline.
2. Confirm the participants' role and indicate that their contribution through their unique expertise and perspective is an important factor in success of the process. This should be designed to get their buy-in to the process.
3. State explicitly the goal of the NGT session and how the results may be used. Emphasize that the group is to be task oriented and be sure they know what the task is.
4. Train participants in the NGT process. Brief them in the steps and cover the rules for each step. The rules will be reinforced as each step is begun, as well.

The NGT consists of six steps:

1. Silent Idea Generation;
2. Reporting of Ideas;
3. Discussion for Clarification;
4. Ranking of Importance (Voting);
5. Discussion of Preliminary Vote;
6. Final Vote.

(Steps 5 and 6 are optional and may be omitted when they are not needed or when time constraints prevent their inclusion).

Silent Idea Generation

The objective of the first step is to allow individuals time to silently and independently react to the problem statement in order to generate possible solution alternatives. The leader should pass out worksheets with the problem statement printed at the top, and ask group members to respond to the statement using short (less than ten words) written phrases (see Attachment 2). By discouraging talking or moving around, the leader can promote an atmosphere for working and reinforce the structure which makes the NGT work. Step 1, then, provides the time for members to respond to the problem with their own ideas, resulting in divergent responses. This step should usually take 6-15 minutes. If most participants finish before your established time limit, move on to step 2.

Reporting of Ideas

The purpose of this step is to allow each member of the group to share his or her ideas. The leader should ask someone to report one written thought. The leader then records on newsprint mounted on a flipchart the person's exact words. Then the next person is asked for one idea and the process is repeated. Ideas are taken serially around the table until all members have shared as many as they have to contribute. If anyone chooses to pass, the

leader simply goes on to the next person. If later, the person who has passed thinks of another idea they should be encouraged to state it (in other words each time around, the facilitator should call on each person, even if they previously have passed). When ideas written on the newsprint stimulate another idea for a participant, that person is encouraged to "piggy back" and to add the idea to the worksheet and report it to the group when it is his/her turn to present an idea. When a participant expresses an idea in a paragraph or two, rather than ten words or less, the facilitator should (tactfully) suggest that the participant think about how to express the idea succinctly and then report it on the next round.

The leader must take care of two details during this second step. First, each idea must be labeled with a letter of the alphabet (see Attachment 3). When the alphabet runs out, double letters are used, then triple ones. This labeling makes the ranking of solutions easier in the last step.

Second, the leader must discourage discussion of the ideas during this phase. The purpose of serial reporting of ideas is to equalize the opportunity to present ideas, particularly for less verbally aggressive participants who otherwise may be overshadowed by more talkative individuals. If suggestions are discussed at this stage, it is probable that specific ideas or certain people will receive more attention than others.

Discussion for Clarification

This step provides an opportunity for open discussion and clarification of all the generated ideas. The leader should encourage group members to ask one another the meaning of words and phrases which appear on the posted newsprint. The discussion can and should convey the meaning, logic, or thought behind an idea. The discussion is not to be used to debate the issue or to argue the worth of the idea, but to clarify its meaning. Worth will be decided in the voting process of steps 4 through 6. Nonproductive discussion

should be curtailed. It is the leader's responsibility to act as an intermediary, in effecting a swift end to any lengthy dispute or digression. Redundant items can be grouped during discussion (see Attachment 4).

Ranking of Problem/Solution Importance (Preliminary Vote)

The purpose of this phase is to "total up" the judgments of each individual in order to determine the relative importance of the problems or solutions that have been identified. During this step the leader should distribute to each person five 3x5 cards (see Attachment 5) and ask that each participant record the five items of highest priority from those listed on newsprint (one selection per card). Each person writes one phrase and the identifying letter(s) on each card. Then the leader asks the group members to identify the item of highest importance and rank it a 5, the next highest in importance a 4, and so on. About halfway through the voting process, remind participants that 5=MOST IMPORTANT of the five highest priority items and 1=LOWEST IMPORTANCE of the five. The cards are collected, mixed, and points are tallied on a master sheet (see Attachment 6). It is important to note that ranking ideas in this nonthreatening, private way makes possible the generation of a group judgment from each individual's judgments. This protects the anonymity of each individual of the group.

Discussion of Preliminary Vote

Step 5 is a discussion of the preliminary vote. A summary sheet like that shown in Attachment 7 may be helpful in this discussion. During this discussion, participants may discover that their priority rankings were based on misinformation, misunderstanding, or unequal information. The first voting pattern may seem inconsistent or certain items may appear to have received too many or too few votes. The subsequent clarification may produce a more definite consensus. A dramatic change in the outcome of the original votes does not usually occur, in spite of this discussion.

Final Vote

For the final vote the group uses the same voting procedure as described in Step 4.

ANALYZING THE VOTE AND REPORTING RESULTS

When people select the "most important" problems or "best" solutions and then rank order them, there is a 2-stage voting process taking place. First, from all the existing statements, the participants pick the most significant ones from their individual perspectives. Therefore, any item that draws a vote must be considered in the interpretation of results. Second, in the ranking, participants prioritize their most significant items. Thus, the intensity of the feeling about the votes should be considered in the interpretation. Table 1 provides a sample reporting format. Each element in this format contributes its unique information to the interpretation of results.

TABLE 1. SAMPLE NGT REPORTING FORMAT

Question: _____

Total Vote	Rank of Total Vote	Freq. Category Selected	Rank of Freq.	Individual Rankings	Ideas Generated Within Categories
29	1	9	1	5,5,4,4,4, 4,1,1,1	Category 1: o Idea 1: ..... o Idea 2: .....
24	2	5	5.5	5,5,5,5,4,	Category 2: o Idea 1: ..... o Idea 2: .....
20	3	6	4	5,4,4,3,3,1	o Idea 1:.....
17	4	7	2.5	5,3,2,2,2, 2,1	Category 4: o Idea 1: ..... o Idea 2: .....
15	5	4	7	5,4,4,2	Category 5: o Idea 1: ..... o Idea 2: ..... o Idea 3: .....
14	6	7	2.5	3,3,3,2,1, 1,1	o Idea 1:.....
13	7	5	5.5	4,3,3,2,1	o Idea 1:.....
7	8	3	8	3,2,2	o Idea 1:.....

Many ambiguities may arise in interpreting NGT results. In the example in Table 1, for example, overall ranks based on a sum of the individual ranks, which is one accepted scoring method, yields somewhat different results than an overall ranking based on the frequency with which a category was ranked. Some authors have suggested that combining individual rankings, as shown in the first column of Table 1 and in Attachment 6, is not appropriate.

As is true of many assessment techniques the results of the NGT are made meaningful through the exercise of judgment. Given the total vote, the frequency with which a response category was selected, and the individual rankings, along with the idea(s) defining each category, the informed user should be able to interpret the results. If, for example, the issue were one for which the greatest advantage lay in responding to the largest number of stakeholders, then the most frequently selected categories might be addressed first. If on the other hand the issue were one that gave rise to very strong and lasting emotion, those categories with the greatest number of 5s and 4s in the individual rankings might be attended to first. Finally, if there are not characteristics of the issue that would lead to preferential selection of "frequently picked" or "intensely felt" categories, then, perhaps the total vote is an appropriate ranking score.

SUMMARY

The nominal group technique (NGT) is one of several structured, small group approaches that can be used in the evaluation process. It has most often been used in needs assessment to generate categories of potential need and/or alternative solutions to perceived specific problems. The process is based on a set of rules and uses silent idea generation, structured reporting of ideas within the group, discussion to clarify reported ideas and prioritizing ideas to develop a product in a short period of time. The product of the process is a rank ordered listing of ideas produced in the group.

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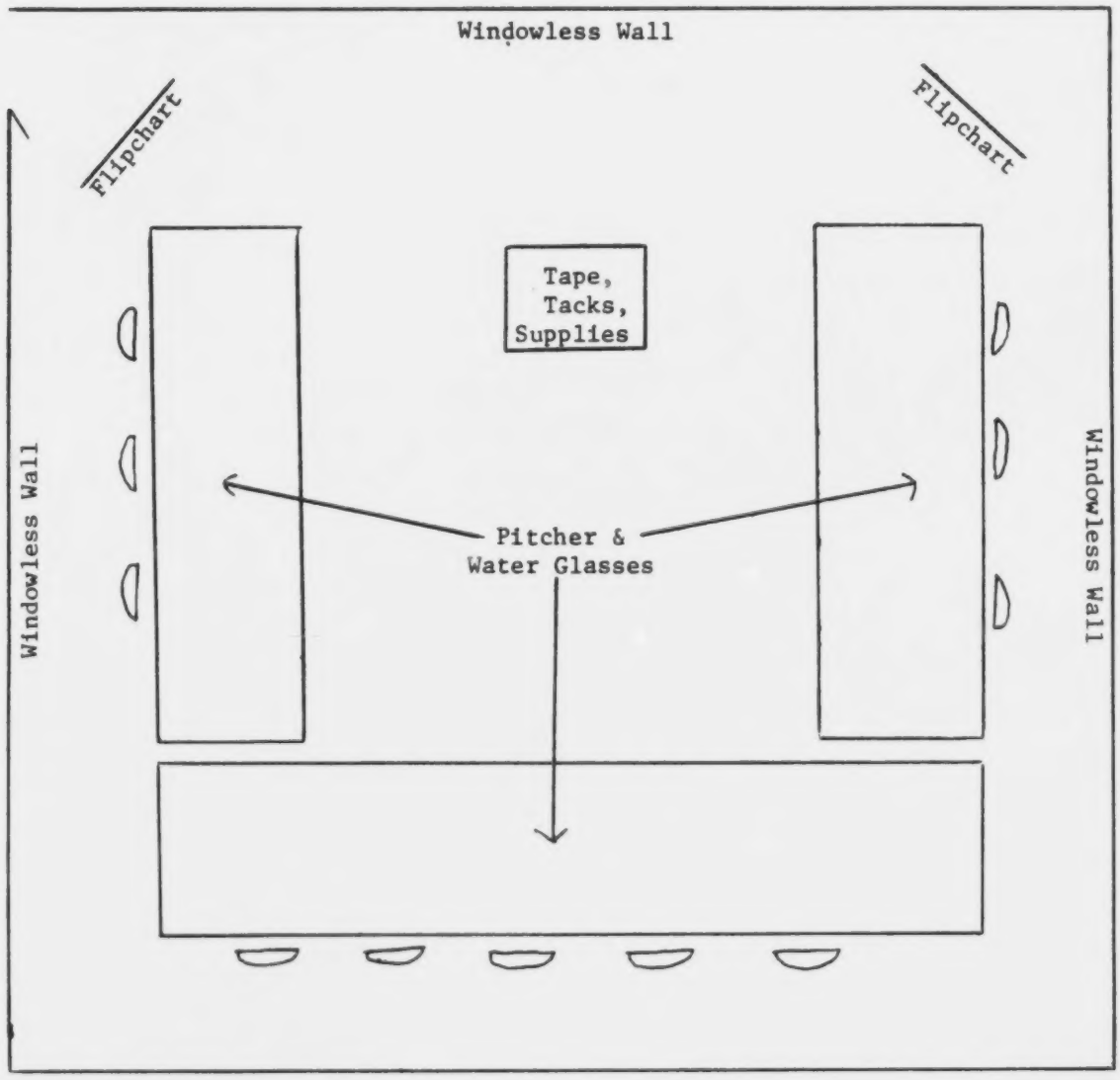
ATTACHMENT 1
Ideal Room Arrangement for NGT



NOMINAL GROUP TECHNIQUE

Phase 1 -- Silent Idea Generation

Problem Statement: Specifically, what are the reasons for the lack of intradepartmental coordination at City Hospital?

* Any idea is important!
* Please respond to the above question silently and independently.
* Write down as many responses as possible.
* Written statements should be short and as specific as possible.
* Use specific action verbs such as to define, clarify, develop, complete, indicate, direct, research, etc.
* Try to avoid generalities such as to understand, know, to be familiar with, etc.

- -

ATTACHMENT 3
Sample Flipchart
Sheet of Posted Ideas

A UNIQUE TERMINOLOGY IN ONE DEPARTMENT NOT UNDERSTOOD IN OTHER DEPARTMENTS

B PERSONS RELAYING MESSAGE DON'T UNDERSTAND MEANING OF MESSAGE BEING SENT

C LANGUAGE BARRIERS

D DISTANCE FROM DEPARTMENT TO DEPARTMENT

E MANAGEMENT DOESN'T ENCOURAGE COMMUNICATION

F AMOUNT OF "PAPER WORK" CAUSES CONFUSION

G TIME LIMITATIONS DON'T ALLOW FOR COMPLETE TRANSFER OF INFORMATION

H SUPERVISORS DON'T GET ALONG

ATTACHMENT 4
Sample Summary Flipchart
Sheet, Showing Grouped Ideas

- A, B, R, QQ
  - B
  - C
  - D
  - E, H, TTT, U
  - F
- G
  - I, m, X, K, L, M
  - J
  - K
  - N
- O, OOO, V, UU
  - P, BB, CC, SS, SSS
  - Q
  - R
  - S
  - T
  - W, Y, EE
  - X
  - Z, DD
  - AA
  - BB
  - CC
  - DD
  - EE
  - FF, AAA
  - 66
  - HH

ATTACHMENT 5
Format to be Used for Cards
used in NGT Voting Process

Identifying letter

Identifying phrase

Rank

A, B, R, QQ 5+4+4+2+2 +2+1+1 = 21
C 3+3 = 6
D 2 = 2
E, H, TTT, U 4+3+4+2+2 = 15
F
G 2 = 2
I, AA, X, K, L, M 5+4+5+3+ 3 = 20
J 4 = 4
N
O, BBB, V, UU 3+5+5+5 = 18
P, EE, CC, SS, SSS
Q
S 2 = 2
T 5+4+3+3+3+2+1+1 = 22
W, Y, EE 5+4 = 9
Z, DD 1+1+1+1 = 4
FF, AAA 5 = 5
GG 1 = 1
HH 4+2+2 = 8

ATTACHMENT 7
Results of Preliminary NGT Vote

CATEGORY	TOTAL VOTE
T	22
A, B, R, QQ	21
I, AA, X, K, L, M	20
O, BBB, V, UU	18
E, H, TTT, U	15
W, Y, EE	9
HH	8
C	6
FF, AAA	5
Z, DD	4
J	4
D	2
G	2
S	2
GG	1